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FEASIBILITY STUDY ON A WORLDWIDE PEPPER FUTURES CONTRACT

Report by the UNCTAD secretariat

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List of abbreviations

ASTA	American Spice Trading Association
C&F	cost and freight
CIF	cost, insurance and freight
FAQ	fair average quality
FOB	free on board
IPC	International Pepper Community
IPSTA	India Pepper and Spice Trade Association
ITC	International Trade Centre
kg	Kilogramme
lb	Pound
MG-1	Malabar Garbled
MT	metric tonnes
PMB	Pepper Marketing Board
Rs.	rupees
SGS	Société Générale de Surveillance S.A.

INTRODUCTION

1. The International Pepper Community (IPC), an intergovernmental organization comprising Brazil, India, Indonesia, Malaysia, Thailand, Sri Lanka and the Federated States of Micronesia, has for a long time been strongly concerned by the continuing instability of pepper prices. Various ways to cope with this problem have been studied and discussed in the framework of the IPC.

2. Some of these efforts were oriented at increasing the stability of the market itself; others tried to help the various actors in the pepper economy to manage their activities better in an environment of unstable prices. Futures markets, at least in theory, offer the possibility for the second: these markets serve a risk-shifting function, and can be used to "lock in" future prices instead of relying on uncertain price developments.

3. The subject of futures market trading was explicitly discussed in the 16th Peppertech meeting in Kochi, India, 8-13 July 1991, to which the India Pepper and Spice Trade Association presented a paper on "Futures trading in pepper". The issue was again discussed in the marketing panel of the 17th Peppertech meeting in Madras, India, 18-19 August 1992, and it was again put on the agenda for the 25th meeting of pepper exporters in Bali, Indonesia, 7-9 June 1993. During this latter meeting, the Malaysian delegation presented a paper on the viability of a futures contract for pepper in the Kuala Lumpur Commodity Exchange and the possibility of having futures trade in pepper regionalized in Kuala Lumpur for neighbouring producing countries.[1]

4. As, during the Bali meeting, the Governments had expressed a need for further studies, the IPC secretariat contacted UNCTAD to carry out a study on the viability of an international pepper futures contract. The report presented here is the final result of this work, which was financed by the United Nations Development Programme through the Asia Pacific regional programme for strengthening capacities for growth through trade and investment (RAS/92/034). A first draft of the report was presented to and discussed at the twenty-second session of the IPC in Chiang Mai, Thailand, 23-23 August 1994.

5. The report sets out to describe the pepper economy in general (including the integration of the various markets; the economic functioning of the main players, as well as the risks to which they are exposed; and the potential economic benefits of enhanced access to futures contracts). The conditions for a future contract are then examined in light of the characteristics

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[1] IPC/25-93/Exp.05

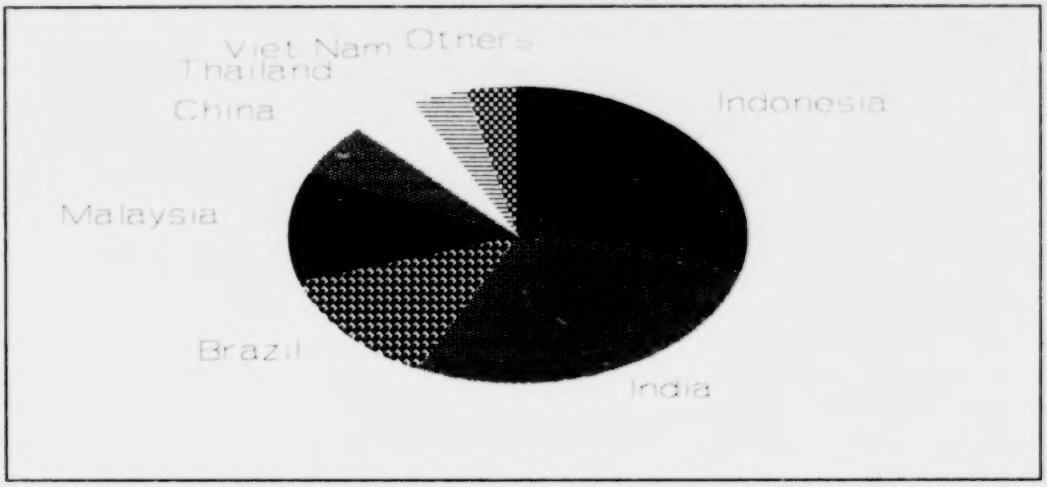
of the pepper economy, and conclusions are drawn as regards current bottlenecks and possible policy solutions. The report is based on in-house analysis by the UNCTAD secretariat; supporting field work in India, Indonesia, Malaysia and Singapore[2] was undertaken by Mr. P. Nandakumar, Consultant, from Kochi, India.

[2] Even though according to some figures Viet Nam is a major exporter of pepper, the country has not been included in this study due to the absence of comparable and consistent time series data.

Chapter I
THE ECONOMIC ROLE OF PEPPER

6. Since its discovery by European consumers in the seventeenth century, pepper is the main spice produced and traded worldwide. The two major types are black and white pepper, and both are generally traded as whole spice. As figures 1 and 2 show, world production and exports of pepper are quite concentrated: India, Indonesia, Malaysia, Thailand and Brazil account for 87 per cent of world production and 82 per cent of world exports. Other (potential) exporters include Sri Lanka, Viet Nam, China, The Lao People's Democratic Republic, Cambodia and Madagascar.[3]

Figure 1
Main producers of pepper in 1992



Source: UNCTAD secretariat, based on figures from IPC, Pepper Statistical Yearbook 1992.

[3] World pepper production has been declining in recent years, from 235,000 MT in 1991 to some 172,000 MT in 1993 (and a similar amount in 1994). The share of the five main producing countries has also declined somewhat, to around 80 per cent.

Figure 2
Main exporters and importers of pepper in 1992

Source : UNCTAD secretariat, based on figures from IPC, Pepper Statistical Yearbook 1992.

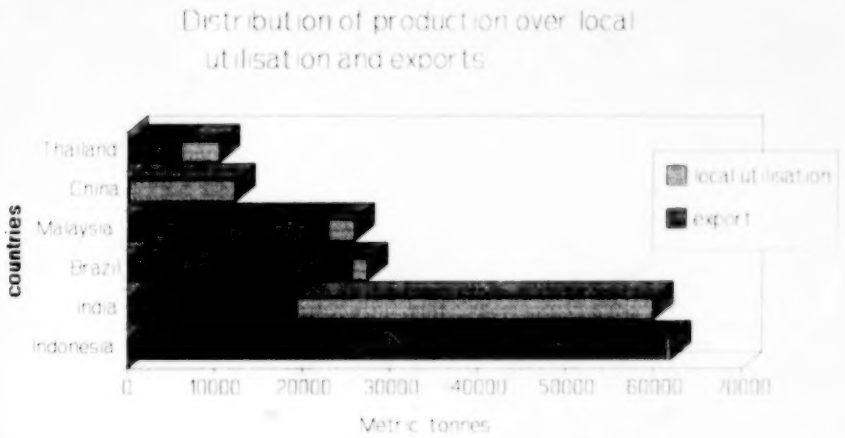
7. The total value of pepper exported in 1992 was US$ 154 million. In terms of the total export proceeds of the countries concerned, this is a minor amount (the highest share of pepper in merchandise export receipts is in Indonesia and India, where in most years it accounts for 0.15 to 0.20 per cent of total exports), but pepper production and trade is of major importance for some regions within these countries and for a large number of farmers. For example, the state of Kerala accounts for 96 per cent of India's pepper production; this is similar to the share of Sarawak in Malaysia's production. In Indonesia, the islands of Bangka (where white pepper is cultivated as a monoculture commodity) and Sumatra (black pepper) together account for 82 per cent of total output.

8. Most pepper is grown by smallholders, who, except in Indonesia and Malaysia, cultivate the crop with various other agriculture products, e.g. as an intercrop in coffee plantations. Nevertheless, even if it is grown through intercropping, pepper is often considered a vital cash crop. In Indonesia, some 95,000 smallholdings (or around 300,000 people in total) are estimated to be involved in pepper production; there are some 15,000 smallholders in Malaysia and about half a million in India. With the possible exception of Thailand, pepper-growing smallholders in India and South-East Asian countries are generally small and marginal farmers, who are normally unable to absorb the brunt of unstable pepper prices without major financial difficulties. Only in Brazil is pepper predominantly produced on large, specialized pepper plantations.

Chapter II
TRADE CHANNELS

9. With the exception of China, all large pepper producers export a major share of their crop. As figure 3 shows, 99 per cent of Indonesian pepper production in 1992 was for export, while India exported roughly one third of its output. Pepper production in most third world countries therefore has a strong international orientation.

Figure 3



Source : UNCTAD secretariat based on figures from IPC, Pepper Statistical Yearbook 1992.

10. The major market for black pepper is the United States of America, while that for white pepper is the European Union. These two markets account for around two fifths per cent of net global pepper imports (see figure 2). However, more than 120 other countries also import pepper, and pepper exporters are trying to diversify their export destinations. It should be noted here that Singapore, which is the third largest importer in the world, re-exports nearly all its pepper; the Netherlands also re-exports about 78 per cent of its pepper imports. Trade flows have shifted in recent years; in particular, half of Indian pepper was traditionally exported to the former Soviet Union and Eastern Europe, but since 1991 most have been going to Western Europe and the United States.

11. Within the major producing and exporting countries, pepper normally does not go directly from farmer to wholesaler/exporter, but passes through one or more intermediaries. There are two major types of intermediaries, namely private traders and farmers' organizations, and two major types of exporters, namely state marketing boards and private exporters.

12. At the domestic level, trade is often rather concentrated, with only a few dozen wholesalers functioning in each country. In Indonesia, for example, there are only some 30-40 active dealers; they are concentrated in Jakarta, Lampung and Pangkal Pinang (Palembang) and together handle some 5,000 metric tonnes (MT) of pepper per month. In Malaysia, there are three levels in the domestic marketing chain. Farmers, scattered throughout Sarawak, sell to primary dealers, who are mostly village shopkeepers or boat/lorry operators. These sell to dealers, who in turn sell to exporters. There are some 30 dealers, of which 15 are active. These are concentrated in Kuching and Sarikei, and together handle around 2,000 MT per month.

13. Export structures are similarly concentrated. In some countries, exporters cooperate in order to market their products. There are only six exporters of pepper in Thailand, the largest of which (Thai Commodities) accounts for half of total exports. There are some 10 international traders in Singapore, who together handle around 3,000 MT per month.

14. On the importing side, the concentration of trade is also fairly strong. Brokers, trade houses and pepper grinders are active in the market. Most of the major trade houses and brokers are located in a few large ports: New York, New Jersey, Hamburg and Rotterdam.

15. In the United States, some two thirds of pepper imports are handled by the grinders themselves. McCormick, the world's largest grinder, buys most of its supplies directly from exporters and has links with some export companies, such as with M/s A.V. Thomas & Company Limited of India. The world's second largest spice company, Burn Philp and Company Ltd. from Australia (which through Tone Brothers Inc. has large grinding interests in the United States), also has a joint venture in India, namely M/s Cochin Spices Limited. Only one-third of US imports is handled by trade houses, including European ones.

16. Three trading companies dominate the pepper import trade in Europe: Man Producten and Catz International (both in Rotterdam), followed by Daarnhouwer (Hamburg). These three companies are estimated to trade from 15,000 to 20,000 MT a year each, or, together, about one-quarter to one-third of world trade in pepper. There are also three dominant importers in Japan, who are however small by international standards.

17. There is active intertrade among trade houses, and also among international brokers. There appears to be a strong speculative element, with forward positions being taken by various segments of the pepper trade; however, speculative fervour has somewhat abated in the United States after the collapse of one company in the mid-1980s.[4] It is also reported that there is a strong paper trade in pepper in the United Kingdom, with the same lot changing hands more than once; this effectively amounts to over-the-counter futures market trading.

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[4] Quality Spices, a major trading house, had made large "short" sales, that is, sold for fixed prices in the expectation of price declines. When prices increased, the company was unable to fulfil its commitments, and a number of American processors and grinders lost heavily.

Chapter III
GOVERNMENT PEPPER POLICIES

18. The fact that pepper is such an important cash crop for a large number of relatively poor smallholders has led Governments to intervene in the pepper market in several ways. Most programmes are focused on improving productivity and combatting pests, for example India's Integrated Programme for the Development of Spices, Indonesia's Pepper Intensification Programme and Programme of New Planting, Replanting and Rehabilitation Project, or Malaysia's Pepper Maintenance Scheme; similar programmes also exist in other countries. The types of activity undertaken under such programmes normally include production and distribution of high-yielding pepper varieties; input supply to small farmers; extension services, including training on harvesting and processing techniques; and research into new pepper varieties and plant diseases.

19. Governments have also been active in pepper marketing, either directly or indirectly. In India, the State-run Kerala State Cooperative Marketing Federation trades in pepper, buying through its cooperative members, at times at prices above those prevailing in the free market, and exporting it (eventual losses are absorbed by the Government). The federal Government, through another purchasing organization, also undertakes price support actions from time to time. In Malaysia, the Pepper Marketing Board (PMB) is itself a buyer and exporter, and regulates the practices of private traders and exporters in respect of quality assessment; however, it buys at prevalent market prices. At times, Governments have tried to influence pepper prices, often taking on price risks (the risk of having to subsidize production/exports). For example, the Thai Government provided export subsidies in 1992 and 1993, reportedly to the amount of US$ 0.30 per kilogramme, equal to 10-20 per cent of free-on-board (FOB) export prices. It is also reported that because of the costs of this programme, the Government decided for the period 1994 to 1996 to shift to production control measures rather than export subsidies, with the price of pepper being left to market forces. Overall, however, marketing intervention is of much less importance than production support, and virtually all pepper production and trade worldwide is in the hands of the private sector.

Chapter IV
PEPPER PRICES AND PRICE VOLATILITY

20. Like the majority of other soft commodities, pepper prices tend to move in a cyclical way and price volatility can be very different from one year to the next. Nevertheless, pepper prices tend to be much more unstable than those of other commodities - in the group of food commodities, only sugar shows at times more fluctuations.

21. Table 1 below shows, as an example, the extent of price shifts from one month to another.

Table 1
Frequency distribution of pepper price changes from one month to the next, January 1991 to January 1995
(Singapore, White Sarawak 100%, closing quotations)

Percentage price change compared to previous month	0-2 %	2-5 %	5-10%	10-15%	15-20%	> 20%
Frequency of price decreases	11 %	11 %	13 %	2 %	2 %	2 %
Frequency of price increases	6 %	21 %	21 %	2 %	2 %	6 %

Source : UNCTAD, Monthly Commodity Price Bulletin, vol. XV, No. 3 (March 1995).

22. As can be noted, pepper prices can change dramatically from one month to the next. In more than half of the months in the period 1991 to mid-1994, pepper prices changed by more than five per cent from the previous month; in eight out of 48 months, the change was larger than 10 per cent. For one-third of this period, price changes were between two and five per cent. Such variations can add to the profits of traders, if they are lucky, but if not a two to five per cent price change is sufficient to wipe out their profit margin on a deal, and, taking into account the fact that a large part of each deal is financed by banks, even larger fluctuations can result in heavy losses of working capital.[5] Only two months in 12 did prices remain relatively stable.

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[5] K.M. Chandrasekhar, Improvement of quality of pepper exported by producing countries, prepared for the Food and Agriculture Organisation, Rome, May 1991, finds that typical gross profit margins for international trading houses and importers from Japan, the United States and Europe are in the 1-3 per cent range.

23. Table 2 below shows the instability of pepper export prices during different periods the main exporting countries, using monthly average prices.

Table 2

Instability indices of FOB prices of black and white pepper in the main IPC countries 1970-1992

	Brazil	India	Indonesia	Malaysia	Thailand
Black pepper instability					
Index 1970-1992	61.5	49.2	53.8	53.3	55.9
Index 1970-1975	30.7	29.6	24.7	21.2	--
Index 1976-1981	20.8	17.7	16.4	24.1	15.5
Index 1982-1987	61.9	48.7	60.0	55.8	52.8
Index 1988-1992	40.9	42.9	43.2	48.8	59.3
White pepper instability					
Index 1970-1992	65.2	---	54.8	50.1	---
Index 1970-1975	34.8	---	22.7	---	---
Index 1976-1981	18.0	---	15.6	16.3	---
Index 1982-1987	65.6	---	53.2	48.9	---
Index 1988-1992	41.4	---	55.9	55.4	---

Source : UNCTAD secretariat calculations based on IPC, Pepper Statistical Yearbook, 1992. Instabili indices are measured as the average percentage deviation of average monthly prices from thei exponential trend level for any given period.

24. Pepper price instability differs from country to country. In particular, long-ter variability (the average deviation from the trend from 1970 to 1992) is quite high. It can al be noted that instability varies from period to period depending on various endogenous and exogenous factors. It was very high between 1982 and 1987, two to three times higher than the early 1970s and even three to four times higher than in the second half of the 197 Volatility declined only slightly between 1988 and 1992. Black and white pepper pr fluctuations were more or less similar during the period 1970-1988, but in recent years wh pepper prices seem to have been slightly more unstable than black pepper prices.

25. Week-to-week price volatility for 1992 and 1993 is shown in annex table 1. For bl pepper, the weekly volatility of FOB prices is high in Indonesia and Malaysia, at around 25 cent, slightly lower in Brazil (19 per cent), and lowest in India (15 per cent); white pepper pr

instability is higher, at around 40 per cent in Malaysia and Indonesia, 20 per cent in Brazil. It is quite likely that the low FOB price volatility in India is linked to the existence of a pepper futures contract in that country: one of the functions of a futures market is to stabilize seasonal prices. The volatilities of weekly prices on a cost, insurance and freight (CIF) basis in the main markets are quite similar, with a slight tendency for higher instability in the Rotterdam market; as concerns the various origins, Sarawak pepper prices are notably more unstable than Malabar prices, with the volatility of Lampung prices being somewhere in between.

Chapter V
MARKET INTEGRATION

26. The discussion in this section is based on an analysis of the correlation between price movements for pepper in several countries, as well as the correlations of price movements for several grades of pepper. Two types of correlation have been analyzed: firstly, long-term correlation coefficients computed over the period 1970-1992 using monthly average prices should show the "structural" integration of the various pepper markets, and also whether these markets have become more or less integrated over time; and secondly, the movements in weekly prices in 1992 and 1993 are computed to indicate the extent of integration of pepper markets for risk management purposes. The main results are presented in tabular form in annex tables 2-5.

27. The FOB prices of black pepper in the major producing countries have been examined to assess to what extent they move in similar ways. An extremely high degree of correlation can be observed. Moreover, over time the black pepper market has become increasingly integrated: the coefficients of correlation in the period 1981-1990 are significantly higher than those in the 1970-1980 period. It can thus be concluded that long-term FOB black pepper prices quoted in the different markets are moving in parallel, the two closest price series being those for Indonesian and Malaysian pepper.

28. The correlation of weekly FOB prices for black and white pepper prices from January 1992 to December 1993 among the different exporting countries is slightly weaker than the long-term correlation, but is still quite high. The lowest coefficient of correlation for black pepper prices is 80 per cent, between India and Brazil; the lowest correlation for black and white pepper prices is between Brazil and Malaysia, 63 per cent. In general, traders and brokers consider a correlation of more than 80 per cent sufficiently high to allow for the use of the other commodity as a financial substitute for the commodity one intends to trade; or in other words, a correlation of one's prices with futures market prices of more than 80 per cent is sufficient to use the futures market for hedging purposes.

29. The correlations of CIF prices in the major importing countries, namely the United States, Germany, the Netherlands and Japan, have been calculated for the three main types of pepper traded worldwide, namely Lampung, Malabar and Sarawak (see table 5 in annex). These calculations are based on weekly CIF black pepper prices in 1992 and 1993. Again, with one exception, the coefficients of price correlation appear to be sufficiently high.

30. In the case of Malabar and Sarawak origins, CIF pepper prices across the different markets are well correlated: each coefficient calculated is above 91 per cent, with the exception of the correlation between Malabar pepper in the Japanese market and that in the Netherlands, Germany and the United States, which is somewhat lower.

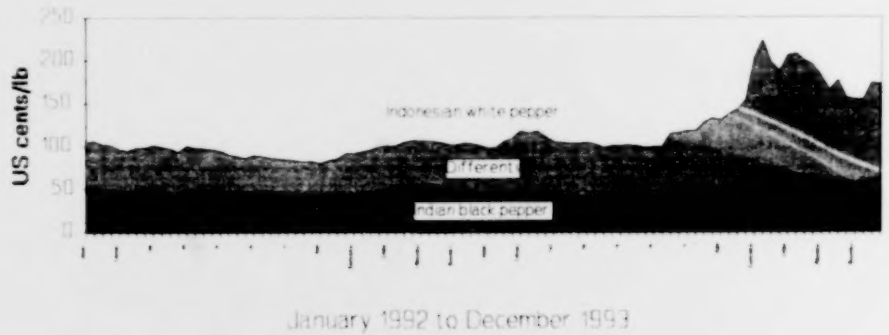
31. The correlation of Lampung black pepper between the Netherlands, Germany and the United States markets is good (the coefficients are above 91 per cent), but is very low (around 35 per cent) when these countries are compared with Japan. Japanese CIF prices for Lampung black pepper effectively do not move in tandem with other pepper prices, be it within Japan or

with prices for Lampung pepper in other markets. In Japan, CIF Lampung prices tend to remain stable over periods of several months, then change, and again remain stable for a longer period. This might be due to the fact that Japan has not been a traditional market for Indonesian black pepper exporters (the 1992 share of Lampung black pepper exported to Japan in total Indonesian black pepper exports was only 0.1 per cent), and hence that one or more companies either in Japan or in Indonesia are absorbing black pepper price fluctuations, for example to gain market share.

32. Vertical price integration, between the country of origin and the country of destination, is again very strong (with the exception, to some extent, of Japan). As annex table 6 shows, the coefficients of correlation of FOB prices of Indonesian, Indian and Malaysian black pepper with the CIF prices for each of these three origins in the Netherlands, Germany and the United States are 90 per cent or higher.

33. One interesting question is to what extent the black and white pepper markets are integrated. These two types of pepper come from the same bush. The difference in taste and colour is created through different harvesting methods. For white pepper, only ripe berries are picked, which are then processed in a way that is more labour- and time-intensive than the processing of black pepper. One hundred kilos of berries yields about 36 kg of black pepper, compared to 24 kg of white pepper. Hence, as the two products are interchangeable, price relations should be rather close - if prices move too far apart, farmers can shift their production from black to white pepper.

Figure 4



Source : UNCTAD secretariat calculations based on data provided by IPC

34. Analysis appears to confirm this close price correlation. The white pepper price level is twice that of black pepper, but as figure 4 shows, the two move more or less in parallel. The price correlation between black and white pepper in Indonesia, as well as in Malaysia and Brazil, is 97-98 per cent for the period 1980 to 1992 (see annex table 3), sufficient for, say, a white pepper producer to use a black pepper futures contract for risk management purposes.

35. In conclusion, the pepper market appears to be extremely well integrated. Prices are moving in parallel both in the producing and the consuming countries for white as well as black pepper. This situation differs greatly from the markets for many other commodities, which are normally quite segmented. Hence, one international futures pepper market would appear to be relevant for virtually all of the pepper producers, traders and consumers; it would also appear that a futures contract standard can be designed so as to provide all these actors in pepper trade with the possibility to manage their price risks effectively.

Chapter VI
THE ECONOMIC RATIONALE FOR PEPPER FUTURES TRADE

36. A pepper futures market can serve two basic functions: to provide a means for price risk management; and to act as a forum for price discovery. Hence, to assess whether there is a need for such a market for the world pepper economy, it is necessary to analyze, firstly the risks that farmers, traders (and possibly Government entities) and consumers have to face and manage; and secondly, whether there is actually a lack of price transparency in pepper trading.

A. The need for risk management[6]

37. Agricultural commodities, including pepper, move through a chain of value-adding activities, beginning with the farmer and ending with the consumer. Each segment of the chain derives revenue and profit by adding value to the product. This, rather than speculating on price movements, is the primary economic function of most economic actors in the chain of value-adding. These actors are exposed to price movements, and experience shows that many of them who have successfully created value within a marketing chain have gone bankrupt due to adverse price movements of the commodities and products they handle. Economic actors which successfully add value to a commodity will thus be intent on reducing their exposure to price risks. But in many cases, they are being forced into speculative positions because there is no viable way to manage price risks or because, for any of a number of reasons, they do not wish to use potential price risk management instruments or are being prevented from doing so.

38. **Farmers** have to take investment decisions, including decisions on the use of labour and other inputs. Their decisions are based on their risk-averse attitude and on the information that is available to them; in cases where there is no organized futures market and there are no government-guaranteed forward prices, information on likely future prices will be in short supply. When prices turn out to be lower than expected, farmers will suffer: ex post, their investment decisions will have been bad ones. Access to futures markets would enable farmers to **lock in** the perceived profitability at the time their decisions are made. In addition, futures markets provide farmers with extra flexibility, in particular if they have been organized in farmers' associations. For example, when farmers consider that prices are low but they need to sell their pepper because of, for example, lack of good storage space or financial pressure, they can sell their physical commodities and, through their association, buy futures contracts (paying a margin deposit) in the expectancy of price rises: holding commodities in inventory and holding futures contracts are, to a large extent, interchangeable economic actions. Moreover, farmers can make use of the "basis", the difference between the price of their commodity in their region and the price of the futures contract. When this difference is considered large (that is, their products are unfairly discounted), they can sell futures contracts and keep their commodities in stock in expectation of a time that price differences will come closer to what the producers consider to be a normal level.

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[6] The discussion in this section is based on UNCTAD/World Bank, "Joint study on risk management in South-East Asia" paper prepared for the Regional Workshop on Commodity Exchanges, Jakarta, May 1994. (UNCTAD/COM/Misc.56).

39. Pepper producers, especially those who rely on pepper for a major part of their cash earnings, are particularly exposed to price fluctuations because any drop in pepper prices is finally (and according to data from Indonesia and Thailand, immediately) passed on to the growers; according to a 1991 FAO study,[7] farmers in Indonesia and Thailand receive some 70 per cent of the FOB price, while farmers in India receive the FOB price minus 2 to 4 Rs/kg (regardless of the prevailing price level; export prices in 1989-1991 varied between 29 and 52 Rs/kg). In effect, smallholders are individually too small and unorganized to have either adequate knowledge or sufficient power to pass price risks on to other entities. This is also illustrated by the fact that in some countries, such as Indonesia and Malaysia, farmers are forced to sell a large part of their crop directly after harvest, irrespective of the prevailing prices. Another large part of pepper is sold even before harvest: in Indonesia, it is reported that about one-fifth of pepper farmers sell their pepper prior to harvesting at a fixed price; others sell their pepper prior to harvesting by accepting a small advance, with the final price being determined after the harvest. In Viet Nam, farmers behave in a similar manner.

40. Price risks can be taken over by farmers' organizations, if they decide to guarantee their members certain minimum prices, or if they borrow money on the basis of expected prices. Experience in other commodities shows that farmers' organizations, rather than individual farmers, are in the best position to manage such price risks on their members' behalf; even in the United States, where farmers are generally well-educated and have access to credit, they often rely on their cooperatives for using futures and options markets. However, it appears that in the main pepper-producing countries (with the exception of India), farmers' organizations avoid price risks. For example, the farmers' organizations in Malaysia, which have some 130,000 members, generally work on a back-to-back basis and only occasionally stock pepper for short periods. These associations are presently in no position to take over farmers' price risks, even if a futures market existed, as they are barred by their constitution from the use of futures markets for the purpose of price risk management. In India, where cooperative societies play an important role in pepper trade and at times carry large stocks, the situation is slightly different in that farmers' organizations can use the Kochi market for hedging purposes. (See section D below.)

41. **Domestic traders/intermediaries** as well as **exporters** are exposed to a number of price risks. Traders will normally create value by moving pepper from a surplus area to an area where there is demand, or by storing pepper from a period in which demand is insufficient to a period when demand is greater. In fulfilling these economic functions, they can run major price risks.

42. Some domestic traders run limited price risks because they work on a back-to-back basis. Others face larger risks - it is reported that big pepper dealers in Malaysia (of which there are about 30) regularly carry stocks of 200-300 MT, financed through bank loans. As their gross profit margin is reportedly rather low (8-10 per cent), this group of traders is strongly exposed to considerable risks. The larger domestic traders in Indonesia (the district traders) hold much lower stocks, of only 5-10 MT, often financed through bank loans. The price risks of these traders are still large; as a reference, similar town dealers in India, who hold only 5-10 MT, are all members of the Kochi futures exchange and utilize the exchange extensively for hedging

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[7] Chandrasekhar, op.cit.

purposes.

43. In some countries government agencies play a major role in pepper trade. For example, the PMB in Malaysia is a large buyer and exporter of pepper, and at times carries large inventories. This exposes it to considerable price risks, but under the current constitution the PMB is unable to enter into hedging operations so as to manage those risks. In India as well, two government agencies (one under the central government and one under the state government) are active in the pepper market, buying when market prices are deemed too low and viceversa. One of these organizations, the Kerala State Cooperative Marketing Federation, is operated by the Kerala state government; it is a member of, and used to be quite active in, the Kochi futures market, but its activities were halted in the mid-1980s.

44. Price risks are especially severe for exporters who, in order to remain competitive, have to be extremely flexible in their international trade. Exporters must bridge the gap between demand by importers and the directly available supply. On the domestic market, they buy on a day-to-day basis, for immediate delivery, while in the international market, forward delivery is more common. In many cases they will be forced to sell "short", that is to sell commodities they do not yet own for future delivery in the hope they will be able to buy these commodities in the time available. This exposes them to the risk of price increases. Because turning down a request from a buyer may hamper longer-term business relations, sellers prefer to be in a position where they are able to sell short without running major price risks: that is, to be able to hedge these risks through futures contracts or, when these are not available, by building inventory beyond the level necessary for their immediate working needs. The latter solution not only freezes their scarce working capital, but also incurs higher storage costs. It should also be noted that longer-term fixed price contracts increase counterparty risks. Indeed, exporters in Singapore have had several bitter experiences with sellers backing out from longer-term contracts when prices increased.

45. The extent of price risks that traders run depends largely on the length of the fixed-price contracts that they enter into. Currently, as concerns exporters from the countries under consideration (with the exception of India), longer-term forward contracts are almost absent. It is reported that there are no exporters in Malaysia willing to sign contracts for over six months, and the majority of deals are on a one-two month basis. These short-term deals are normally covered by existing physical stocks: exporters run no price risks but, as mentioned above, they are confronted with larger storage costs as well as having part of their working capital frozen in physical goods - in several countries, including Indonesia and Malaysia, this is reported to have often caused difficulties for exporters. Forward contracts for periods of over two months are normally short sales, and covered only at the time of shipment. This presents large price risks for exporters. Exporters' profit margins, reported to be 8-10 per cent in Malaysia, are barely sufficient to cover such risks. For this reason, Sarawak exporters have reportedly reduced their exports to the United States, where buyers prefer five-six month forward contracts. Singapore exporters normally sell two-three months forward, and at times up to six months; considering that their profit margin is reported to be no more than 1-2 per cent, they thus run very large price risks. To avoid the risks of short sales, they normally carry substantial inventories, and they also try to buy for several months forward from producing countries.

46. On an occasional basis, Indonesian exporters sign fixed-price contracts up to 15 months out; for example, a contract for 120 tonnes, to be shipped in lots of 10 tonnes every month, starting from the fourth month of the date of the contract. Large Indonesian pepper exporters are also large exporters of coffee and other commodities, so they benefit from a portfolio of non-correlated risks; nevertheless, in 1993 they were faced with losses that were difficult to bear as domestic pepper shortages caused major difficulties in fulfilling their export commitments.

47. Indian exporters appear to enter into the longest-forward contracts, as much as 18 months out, mainly with American buyers. As these forward contracts are fixed-price contracts denominated in US dollars, rather than price-to-be-fixed contracts based on the exchange prices, exporters run major pepper price risks (hence their active participation in the Kochi exchange) as well as US$/rupee exchange risks (which currently cannot be covered). Many exporters are trading in other spices as well; this allows them to offset losses in one business with profits from another, and thus take a more speculative attitude than is possible for specialized pepper exporters. Somewhat surprisingly, long-term contracts are negotiated on the basis of spot prices, not on the basis of the quoted futures prices. This may be due to the fact that Indian exporters compete with exporters from other countries, who have to trade on the basis of spot market prices in the absence of a futures market.

48. In Indonesia as well as Malaysia, most of the larger pepper exporters are also exporters of coffee and/or cocoa. They actively use the robusta and cocoa futures contract in London through brokers in Singapore, and generally have access to Reuter screens. All these reduce their dependency on pepper and thus increase their capacity to take risks in pepper trade. On the other hand, the fact that they already use coffee and cocoa futures markets should give them the knowledge, confidence and the motivation to engage in a pepper futures contract.

49. **Importers** and **buyers** like a steady supply of the commodity they desire at predictable prices. Unfortunately, forward contracts are not a good means for reaching these goals. When actual prices move away from the agreed price in the forward contract, default becomes likely. International trade houses reckon that about one-quarter of fixed-price commodity forward contracts need to be renegotiated on account of sellers' unwillingness or inability to deliver. On the other hand, if prices increase, buyers tend to invoke severe quality penalties or stick rigidly to contract conditions (in practice, very few sellers are able to comply with all conditions of a commodity trade contract), thus effectively forcing down the purchasing price. Ultimately, the sanctity of forward contracts is dependent on the level of trust between the buyer and the seller. In contrast, futures contracts do not require such trust, as a clearing house interposes itself between the buyer and the seller.

50. The nature of market activity of the various players in the pepper economy, and the nature of price risks to which they are exposed are presented schematically in table 3.

Table 3
Overview of price risk exposure of major categories of pepper market participants

	Market activity	Nature of price risk
Farmer	Spot sales; in India, also carry forward part of the harvest	Risk of price decline during the growing season and of price decline on inventory
Primary dealer; village trader; sub-district trader	Back-to-back trade	Minimal
Town dealer	Malaysia: back-to-back trade, and small inventory. India: forward sales and small inventory.	Price decline on inventory Price increase on forward sales; price decline on inventory
District trader (Indonesia)	Spot seller, and medium-sized inventory	Price decline on inventory
Trader/packer (Singapore)	Forward sales and purchases; medium-sized inventory	Price decline on inventory and price risk on forward sales and purchases
Farmers' organization (India, Malaysia)	Back-to-back trade, and inventory	Price decline on inventory
State trading organization (Pepper Marketing Board, Malaysia)	Forward sales, large inventory	Price increase on forward sales and price decline on inventory
Exporter	Forward sales and inventory	Price increase on forward sales and price decline on inventory
Overseas buyer	Forward purchases	Price declines lead to opportunity costs; price increases cause counterparty default risk.

Source : P. Nandakumar, *Feasibility study on internationally oriented black pepper futures contract*, consultancy report to UNCTAD, 1994.

51. There are a number of ways to manage price risks.[8] Price risk management tools allow economic actors to concentrate on their relative strengths and build up their competitiveness in an increasingly competitive world economy. The larger degrees of business security made possible through the use of risk management tools allows them easier access to more capital, both working and investment capital; in many cases, their suppliers will profit from their access to risk management markets. For example, traders will be in a better position to offer fixed-price forward contracts to farmers. As will be discussed in the following sections, a pepper futures market would also have several other benefits.

B. Price discovery

52. Apart from being a vehicle for risk transfer among hedgers and from hedgers to speculators, futures exchanges also play a major role in price discovery. Price information is an important aspect of any market system, and well-functioning futures exchanges are the most reliable price discovery mechanism available. Futures markets have a strong interest in

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[8] See "Survey of risk management instruments" (UNCTAD/COM/15).

publicizing price information in the widest way possible.

53. Speculators play a major role in this price discovery function. They make a living by trying to predict future price movements correctly. They thus can draw a significant economic benefit from investing in ways and means of obtaining market information, more so than market parties who are interested only in managing their risks. Speculators help to get information to the market in the fastest way possible. They also provide the liquidity that hedgers need to use the market properly. Even though massive speculative participation can at times distort markets for short periods, overall speculators play a very useful role.

54. Prices for pepper are available from a number of sources, both within the producing countries and internationally; for example, the International Trade Centre publishes weekly pepper prices for a number of markets. However, whereas futures markets give updated prices every minute as long as the markets are open, such price reporting through regular publications is normally only from day to day or, more frequently in the case of pepper, from week to week. The time delay in getting price information to the potential users is also large (prices are normally obtained through telephone conversations with a number of traders). For pepper, there is now only one "immediate" and open price discovery mechanism, namely the Indian futures market; in other markets, price publications are based on interviews or officially reported prices.[9]

55. A comparison of the various pepper producing countries appears to show that access to price information enhances farmers' bargaining power, and that the best price information appears to exist in India, through the Kochi market. In Malaysia, farmers depend on prices published by local newspapers and price bulletins over the radio: the PMB collects spot prices from exporters and farmers' organizations during the morning and releases these to the radio and the newspapers on the same day. In Indonesia, export prices for pepper are published and broadcasted by radio but this information is of limited value to farmers, who need data on unprocessed and processed pepper prices. In Kerala, farmers have direct access to the futures market prices broadcast on the radio and know how to interpret this information (Kerala has a very high literacy rate, considerably higher than that in the other pepper-producing regions). Thus, for essentially the same black pepper, it is reported in June 1994 that the Indonesian farmer received 108 cts/kg; the Malaysian farmer 124 cts/lb; and the Indian farmer 147 cts/kg.

C. Access to credit

56. Futures contracts enhance the financial viability of firms that use them for hedging purposes. For example, it is often difficult to find bank financing for an inventory because the value of the inventory fluctuates rapidly. An economic actor that can show that it uses futures contracts is in a better position to obtain credit for working capital and other operational needs; banks are often more willing to increase their financing from some 40-50 per cent of the value of risk-exposed stocks to over 90 per cent of the value of stocks covered by appropriate futures contracts. Pepper exporters in several countries carry large stocks financed by often expensive bank loans, so this issue is of relevance to them.

57. Futures contracts normally embody delivery possibilities and specifications. The delivery standards thus defined provide a quality benchmark against which physical trade can be set. This

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[9] In the past, the Singapore Chinese Produce Exchange also had an active pepper price formation system, with samples brought to the exchange and most transactions taking place on the exchange; prices were then distributed to the media. Now, the Produce Exchange is not very active, and prices are decided by a committee, rather than on the basis of actual transactions on the floor.

quality guarantee creates a stable market environment for market participants and provides an incentive for market participants (including warehouse operators and shippers) to upgrade their services to meet minimum specifications. The warehouse warrants given out by certified warehouses can be traded, which considerably improves the flexibility of the market as well as access to credit.

D. The Kochi pepper futures market[10]

58. Futures market trade in pepper is not a new idea. In India, the Pepper and Ginger Merchants' Association in Bombay organized futures trading in pepper during the 1930s, until it was banned in 1944. In 1937, the New York Produce Exchange introduced black pepper futures, although they did not survive for very long. After India's independence, the Cochin Hill Produce Merchants' Association reintroduced futures contracts on pepper in April 1952; five years later, in 1957, this was taken over by the India Pepper and Spice Trade Association (IPSTA), which has since managed the Kochi pepper futures exchange.

59. IPSTA trades in what are officially called "transferable specific delivery contracts"; apart from a few technical details, these amount to what is commonly known as futures contracts. The exchange currently offers eight contracts in a year, viz. January, February, March, May, July, August, October and December. Throughout the year three contracts run concurrently. Although this is not very far forward, it is the longest contractual duration the exchange is allowed to issue under current government regulations. The exchange's annual turnover ranges between 100,000 and 110,000 MT, more than double India's black pepper production. Around 40 to 50 per cent of this turnover is related to the hedging of export commitments. In terms of contracts traded (one contract is for 2.5 MT), turnover was in the range of 44,085 to 53,169 contracts in the 1990-1992 period. The exchange trades every working day, from 9.30 a.m. to 4.30 p.m. In most years, only around 5 per cent of the turnover results in physical delivery. There are 150 members representing all segments of the industry and 40 registered brokers to intermediate in the transaction - members are not allowed to undertake transactions directly, but need to pass through the brokers.

60. The exchange is used for pepper futures trading by some larger farmers, town dealers, the larger interstate dealers and exporters. Most of India's major pepper exporters are members of the exchange and use it regularly. Nevertheless, there are some problems, partly linked to the operation of the exchange, partly linked to government regulations.

61. Against the backdrop of the current regulatory framework, the Kochi pepper exchange, although it provides a good service, does not entirely function as a dynamic business entity, as its counterparts in other countries do. It has not been very active in the promotion of the available services among potential users (it does not even have a marketing division). The decisions of the various commissions of the exchange are slow. The prices of the exchange are not distributed through any information vendors (such as Reuters or KnightRidder); if this were done, the relevance of the market to pepper producers, traders and buyers would immediately

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[10] See also T. Vidyasagar, "Pepper futures trading in India", a paper presented at the UNCTAD/Ministry of Trade-Indonesian Commodity Exchange Board "Regional Workshop on Commodity Exchanges" in Jakarta, Indonesia, May 1994.

become much larger.[11] Access to the market has been made more difficult by rules which force members of the exchange to obtain a sales tax registration (in accordance with government regulations); this takes a minimum of six months to one year, and is only feasible for those who have an office in Kochi (so out-of-town companies cannot become members). Trading hours are unduly long for the small number of contracts traded - it would be better to concentrate trade in one or two shorter sessions, which would free up the trading floor for trade in other, new futures contracts. Trading procedures are somewhat primitive - there is no system of time-stamping, an absence which would make it relatively easy (if liquidity increases) for floor traders to abuse their clients' confidence - and the exchange currently does not have an audit department to control floor practices. Moreover, although much effort has been made to improve the clearing procedures (margin deposits are relatively high, varying between US$ 180,000 and US$ 350,000 at the beginning of 1994 and, contrary to most other Indian exchanges, the Kochi exchange has daily clearing), the clearing house arrangements (including financial reserves) may still not be suitable in terms of gaining international trust.

62. In India, commodity futures markets are bound in a tight web of regulations. Also, the Government can intervene in physical trade in pepper in various ways, including through the procurement prices set by the government intervention agencies; it also sets minimum export prices. Foreign companies are not allowed to become members of, or trade on, the exchanges. Until the fiscal year 1996-1997, it will be impossible for foreign investors to repatriate all the income they earned on their investments in India. Indian banks, institutional investors, pension funds and mutual funds are not allowed to use commodity futures exchanges. Taxation rules do not recognize hedging as a legitimate business activity, although larger companies appear to be able to negotiate this on a bilateral basis with the taxation department.

63. The Kochi futures exchange has been of benefit to the Indian pepper community, but is still some distance from becoming an international exchange. The exchange will have to adopt an action programme to bring it up to a higher operational level; that is, if the Indian Government, through its various concerned components (Parliament; Ministries of Finance, External Affairs and Civil Supplies; and the Forward Markets Commission, which is responsible for supervising the exchanges), is willing to allow an Indian exchange to play an international role.[12]

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[11] More generally, the exchange would benefit from becoming a focal point for international market information on pepper, e.g. through entering into an information link with the International Trade Centre - UNCTAD/GATT, which provides CIF pepper prices.

12 Reportedly, the Indian government cleared mid-1995 a proposal of Indian Pepper and Spice Trade Association to develop an international pepper futures contract at the Kochi exchange.

Chapter VII
THE BASIC REQUIREMENTS FOR SUCCESS FOR A WORLDWIDE PEPPER FUTURES CONTRACT

64. Even though a futures contract does fulfil a useful function for the commodity sector concerned, the potential usefulness of a contract cannot guarantee its success. In general, for a commodity futures contract to be successful, several conditions need to be met:

- **(a)** Supply and demand for the commodity concerned have to be large; there need to be many potential players; and pepper must be a fairly important component of these players' operations;
- **(b)** The commodity traded must be well standardized and storable;
- **(c)** Pricing must be left to market forces, without monopolistic or undue government control;
- **(d)** Free market prices must be volatile enough to create large price risks;
- **(e)** The contract should be supported by major commercial interests;
- **(f)** There should be enough potential interest from the speculative community;
- **(g)** Well functioning services and infrastructure facilities are necessary, e.g. efficient administration, warehousing, clearing, data processing, telecommunications, etc;
- **(h)** Judicious government support is required - including a willingness to adopt suitable new regulation/legislation and appropriate oversight over trade on futures markets.

65. The above conditions and prerequisites will be examined further below.

(a) Size and scale of operations and participation

66. There has to be a sufficient number of speculators and hedging interest to assure that no one group or firm is dominant. This is to prevent manipulation, and helps the liquidity of the exchange. Inadequate market liquidity is in general the primary reason for the failure of new contracts.

67. World pepper production in the early 1990s was around 220,000 MT, and world trade around 150,000 MT. As the earlier discussion has shown, domestic and international markets appear to be well integrated in most countries; thus, a futures market could normally serve to hedge price risks not only in international trade but in domestic trade as well. Experience from other futures markets shows that since the late 1970s, futures (paper) turnover is most often around 10 times the volume of underlying commodities (before that, a relation of 1 to 1 was not uncommon).[13] For some commodities, however, it is much lower (and for some, much higher). For crude oil and robusta coffee, for instance, futures turnover is only five times the volume of the underlying physical market; for palm oil, futures turnover and physical volume are about equal. A conservative, estimate would thus be that the "paper" turnover of pepper futures would be equivalent to between 220,000 and 1.1 million MT.

68. One could envisage a futures contract size of 5 MT. Virtually all pepper trade is by 15 MT container (in cargoes of 14-15 MT), so a 5 MT futures contract would be of an appropriate size for use in physical trade. From a financial point of view, a futures contract size of 5 MT also appears quite reasonable: the nominal value of such a contract is US$ 7,000-10,000. Although slightly lower than that of most commodity futures contracts (most are in the US$

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[13] See UNCTAD/COM/15/Rev.1, annex II.

10,000 - US$ 30,000 range), it is similar to the contract value of palm oil on the Kuala Lumpur Commodity Exchange, and still two-three times larger than the nominal value of the London robusta contract during the early 1990s. At this contract size, the number of futures contracts to be traded yearly would be between 44,000 and 220,000, or, with 220 working days, 200 to 1,000 contracts a day.[14]

69. There are a few futures markets which are considered sufficiently liquid by trade participants and which trade, on average, 500 to 1,000 contracts a day, for example the New York domestic raw sugar market, the Paris white sugar market, the New York orange juice market, or the Singapore rubber market. Most commodity futures markets trade more than 1,000 contracts a day, however.

70. To reach a turnover of 500 contracts of 5 MT a day, more than half a million tonnes of "paper pepper" will need to be traded. Current paper trade in India is around one fifth of that volume. If properly organized, an internationally oriented pepper futures contract would tap not only the Indian market but also the South-East Asian market. Besides, it should not be overlooked that many potential participants in India are still not using the Kochi exchange because of regulatory barriers and of inadequate effort on the part of the exchange to educate possible users about risk management.

71. In terms of liquidity, then, a new internationally oriented pepper futures contract could face difficulties under current circumstances: while it is not impossible that sufficient market liquidity would be reached, the level of participation would need to be maximized in order to make this requirement likely. This implies, *inter alia*, that the contract would need to draw participation from a wider group of potential market users and from as many countries as possible.

72. Possible speculative interest will be discussed under point **(f)** As regards hedging interest, potential users include: farmers; farmers' organizations; various domestic and exporting traders; importers, including grinders; and government agencies. Their price risks have been discussed in section VI. A.

(b) Standardization and storability

73. While the storability of pepper does not present a problem, the standardization of physical pepper trade is still not complete. This makes it essential to analyze physical trade practices to determine what is the most common denominator for all the concerned transactions.

74. For a commodity futures contract to be viable, codified standards that govern trade must

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[14] It may be useful to compare this with the futures contract traded in Kochi by the IPSTA. This contract has a size of 2.5 MT. On average, around 40,000 contracts were traded each year in the early 1990s, equivalent to around 100,000 tonnes of "paper" pepper (roughly double India's production). This implies a daily turnover of some 200 contracts. With such a turnover, although low, it would still not be too difficult to hedge the price risks of one container (selling or buying 6 contracts of 2.5 MT is not likely to have a major impact on equilibrium prices). As discussed in chapter II, the large majority of international dealers in South and South-East Asia trade, on average, less than one container a working day, so for them, the Kochi market would appear already to provide sufficient liquidity. Only for the largest Western trading companies (Man Producten, Catz International and Daarnhouwer each trade on average 5 to 7 containers on a working day) and the main grinders, would the current liquidity on the Kochi exchange appear too low to allow proper hedging. Also, the Kochi market would currently appear to be too small to attract sizeable speculative interest (which would help to reduce transaction costs).

be available, especially for commodities subject to the levy of premiums and to discounts for different deliverable grades. If this is not the case, then the delivery could wreak havoc with the price formation process on the exchange: the exchange could be used as a dumping ground for unwanted qualities. It should be noted that the ability physically to deliver commodities is not an essential condition for potential futures market users. There are futures contracts without delivery possibilities, and, for example, Sabah palm oil producers actively use the Kuala Lumpur market even though all delivery locations are on peninsular Malaysia. Nevertheless, delivery specifications can play a major role in preventing manipulation and in assuring that futures market prices truly reflect physical market conditions.

75. In the major importing countries, there is a general move towards codified standards, with the American Spice Trading Association (ASTA) grade as a minimum requirement. In the United States, this is the legal minimum standard. The delivery specifications of the Kochi markets allow only ASTA-quality pepper, as certified by the Societé Générale de Surveillance, to be delivered; in Malaysia, the PMB provides quality certificates and has the capacity to process pepper up to ASTA quality and Fair Average Quality (FAQ); and the major part of Indonesian pepper exports reaches ASTA quality.[15] Nevertheless, it is still not the standard grade of international pepper trade - indeed, a large part of pepper production does not yet conform to ASTA standards. A pepper futures contract would ultimately have to define the ASTA grade as the minimum deliverable quality; premiums would have to be determined for eventual superior qualities of pepper. But at the same time, in order to prevent market squeezes due to the lack of deliverable quality, efforts would need to be made to upgrade pepper production to ASTA standards. It can also be argued that for the introductory phase of an internationally oriented pepper futures contract, FAQ quality pepper (slightly lower than ASTA quality) should also be made deliverable. It is probably preferable to specify only black pepper as deliverable, even though the market would want also to attract white pepper producers, traders and buyers as hedgers (as noted in chapter V, black pepper prices and white pepper prices move sufficiently in tandem to allow futures market participation of these groups).

(c) Pepper pricing

76. In order for a futures market to provide a viable price discovery and risk management mechanism, the prices of both the futures contract and the underlying physical commodity must be determined by market forces, without monopolistic influence or undue government control.

77. Pepper trade is concentrated, but not more so than trade in other soft commodities - in fact, concentration appears to be somewhat lower than in commodities such as sugar and coffee. On the side of importers, three European trading companies account for one-third of world trade, and there is also one major American buyer. But there are some 40 other American buyers, 3-5 large buyers in the Dutch market, 3 larger buyers in Germany, some 10-15 small buyers in the United Kingdom market, a dozen Japanese importers, and dozens of importers in the Republic of Korea, Pakistan and Spain.

78. On the side of exporting countries, concentration is also fairly strong, but not stronger than for other commodities for which futures contracts are traded in an active manner. In Indonesia, where there are 34 registered exporters of black pepper, six traders account for 80 per cent of black pepper exports from Lampung. In Malaysia, there are about 15 pepper exporters.

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[15] It should be noted that ASTA quality specifications differ from country to country. Specifications are strictest in India and loosest in Singapore. For purposes of delivery on a commodity exchange, it would probably be necessary to arrive at one standard for all pepper trade.

In Singapore, there are 10-15 exporters, some of whom have offices in Sarawak. It should be clear that, with this kind of concentration, the chances of success of a domestic pepper futures contract in for example Indonesia or Malaysia are rather remote. But if one market is used by exporters from several countries, no group of traders really has a predominant share.

79. Government intervention in pricing is, in itself, not a problem for a futures market; it becomes a problem only when the government intervenes in a manner that is difficult to predict for market participants. This form of intervention can hinder the proper functioning not only of the physical market for pepper, and also of the pepper futures market. Even if governments very rarely intervene in pepper pricing, the incertitude about its intentions may discourage the use of a futures market. For example, in India, the government leaves pepper pricing largely to the free market, and in practice, the Kochi pepper futures prices follow closely international prices; nevertheless, the risk of government intervention, which can cause losses to hedgers, is always there. This constraint, as already discussed in section 6.D. above, will need to be resolved before a pepper futures market in India can become useful for international participants.

(d) Pepper price volatility

80. As noted before, the volatility of pepper prices is high, one of the highest among those exhibited by agricultural commodities. Hence, price risks are sufficiently large to warrant risk management strategies.

(e) Support by major commercial interests

81. Information about support by major commercial interests is scarce, especially as concerns the main importers; some more work will thus be necessary in this regard. It should be noted that many importers already use over-the-counter futures contracts for pepper and hence are implicitly interested in risk management. Those who responded to an UNCTAD questionnaire on an internationally oriented pepper futures contract sent in mid-1994 did so in a positive manner, indicating a preference for Singapore as the place for such a contract. Before the launch of an international pepper futures contracts, an explicit commitment of the importers to use these contracts would be necessary. As concerns the main exporters, many have experience in the management of price risks for coffee, cocoa and other crops; therefore they will have the capacity and the contacts necessary to use an eventual pepper futures contract. Exporters in Malaysia and, in particular, Indonesia have expressed their interest in a pepper futures exchange; again, Singapore was their preferred location.

(f) Support by the speculative community

82. Such support depends firstly on the contract's liquidity and secondly on the extent of price volatility. Large speculators are likely to remain absent because liquidity is likely to be low but it is probable that smaller speculators and floor traders will be interested; such speculators have a large share of exchange turnover in India.

(g) Services and infrastructure facilities

83. The essential facilities for futures trade including administrative capacity, warehousing, clearing services, data processing and telecommunications constitute a prerequisite to be taken into account when selecting the site for a futures market and its service centers.[16] Market participants must also have confidence in an exchange's governing board: the board should have

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[16] For instance, Malaysian exporters rule out Kuching as a site for a futures market because of the town's poor infrastructure.

a balanced and neutral view.

84. Another aspect is the likely extent of participation in the exchange. Even though Malaysian exporters feel that the Kuala Lumpur Commodity Exchange has all the necessary infrastructure and skills to introduce and operate a pepper futures contract, they are of the opinion that there are not sufficient potential domestic users in Kuala Lumpur, especially when account is taken of the decline in Malaysia's role in black pepper trade. In Jakarta as well, liquidity would be too low (Singapore would be the preferred location of a commodity exchange for Indonesian exporters, as indicated earlier).

85. Regarding exchange warehouses, these have to be located so that they are in the natural "flow path" of the commodity, and they need to be capable of handling adequate volumes. This is essential to ensure that cash and futures prices converge. The delivery location thus is a problem. Currently, most contracts apparently are one-two month forward contracts, on a carriage and freight (C&F) basis. It is possible to install the exchange warehouses in the **importing** countries, not in the exporting countries (there are also a number of theoretical arguments indicating that this would help to buoy prices, as the market could not then be used easily as a market of last resort for producers); delivery would then be on a CIF basis, relatively close to C&F standards. Hence, an exchange in India, Malaysia, Indonesia or any other country in the region would have to contract warehouses in Europe and the United States. This is not a novelty: exchanges regularly have warehouses in other countries. To give but one example, the Manila International Futures Exchange accepts only Japanese delivery locations for some of the commodity futures contracts it trades. The alternative would be to have more than one delivery location in producing countries, similar to the current practice in the New York and London sugar markets; this has not proven to be a real barrier to developing country producers, exporters and traders, but in the case of pepper, a flexible system of premiums and discounts for the different delivery locations would have to be elaborated (for example, using the absolute level of futures exchange stocks in each location as a trigger point for premium/discount adjustments).

(h) Government support for pepper futures trade

86. There are two aspects to this issue. Firstly, there must be confidence that the futures market's host Government will not interfere with the "price discovery" mechanism of the market. The market must therefore, be located in a country not prone to sudden shifts in regulatory policy. Secondly, there should not be unnecessary government interference with the risk management transactions made by producers, traders and others; also, movements of goods and capital pertinent to futures transactions should not be unduly or arbitrarily restricted. Nor should there exist other obstacles which prevent the use of foreign risk management markets (for example, the non-convertibility of currency).

87. The first aspect would be of concern if the international futures market is to operate in India under the same conditions as those governing the current domestic futures market. The Indian Government has a large discretionary power over the functioning of the exchange, including the options to prevent trading in certain contract months and to enforce ceilings and floors on prices. Even though the Government may hardly need to use this discretionary power, foreign participants may be hesitant to face the risk of possible government intervention. This risk also arises out of possible government actions in the physical market, for example, in April 1993, at a time that prices stood at 26 Rs/kg, the Government started buying at 33 Rs/kg. In Malaysia and Singapore, the regulatory framework is relatively well suited to the functioning of internationally oriented futures exchanges. In Indonesia, some problems remain; these could to a large extent be resolved through new draft legislation which is now under discussion. Thus, from the point of view of the regulatory environment, Malaysia and Singapore would be suitable

as a location for a pepper futures market; the proper conditions may be created soon in Indonesia, while in India, current policies towards futures markets in general make it difficult for the present pepper futures market to play an important international role.

88. In some countries in the region, there are no real problems concerning the use of foreign futures markets. In Malaysia, as in Singapore, the movement of funds for risk management purposes is not restricted. In Indonesia, the movement of funds for risk management purposes is not forbidden, but there are some other major barriers, in particular the lack of proper brokerage regulation. Without a brokerage network, medium-sized entities (including farmers' associations) in Indonesia will hardly be able to use a foreign futures exchange because they will not be able to develop and maintain direct contacts with foreign brokers (such direct transactions involve, among other things, the maintenance of a foreign bank account). In Thailand, the legal status of margin payments is not clear and Thai companies are thus forced to find innovative ways to finance their operations on futures exchanges. This is no real obstacle to large, experienced companies, but smaller entities may be hindered in their participation in a pepper futures market. In India, capital flows are also restricted, and this again would make the use of foreign futures exchanges very difficult; moreover, foreigners are banned from using the Indian futures exchanges. The main potential obstacle to the use of an eventual pepper futures market in Brazil is a by-effect of the minimum-export price policy of the Central Bank: it appears that exporters need permission from the Cartiera do Comercio Exterior, a branch of the Bank of Brazil, to export pepper, and that this permission is not given if the export price is below a certain minimum export price (which is linked to current market prices). If a contract is hedged, the effective export price (corrected for the results of hedging) may be below this price (as would also be the case for fixed-price forward contracts). Under this condition, and without a specific exemption for risk management transactions, it would be difficult for Brazilian producers and exporters to manage their price risks.

Chapter VIII
CONCLUSIONS AND OPTIONS FOR DISCUSSION

89. Price risks in the world pepper economy are large. Pepper is one of the most volatile commodities traded internationally, with prices more often than not changing by upwards of 5 per cent from one month to another. This creates large risks for farmers, traders and importers of pepper, as well as, to some extent, for Governments intent on protecting their farmers' incomes. Farmers run large risks because they do not know what price they will receive for the pepper they are producing current prices offer meagre guidelines for decisions on the allocation of labour or on the purchasing of inputs. Traders often carry large inventories, the value of which can be significantly affected by price changes; moreover, they are often forced to enter into uncovered fixed-price forward contracts for relatively long durations, thus exposing themselves to the risks that prices will increase before they can cover their physical obligations. Importers of pepper try to a large extent to minimize the price risks borne by shifting these risks to the producing countries (through longer-term fixed-price forward contracts), but this is only an imperfect protection; also, this arrangement entails the risk of counterpart default. Governments occasionally feel obliged to make up for the deficits in their countries' pepper sector when there are large price declines, often at high cost. On balance, without the existence of a risk management market, the production and trade of pepper therefore involves a large element of implicit price speculation.

90. Objectively, risk management mechanisms are needed. Such mechanisms could be in the form of intergovernmental control over production and prices, for example, through production management schemes and coordinated pricing policies. However, the concerned modalities involved are notoriously difficult to negotiate and to implement. It is thus well worth considering the creation of a mechanism which allows the various actors in the pepper economy to lay off their risks to the extent that they wish; that is, in this context, the establishment of an international pepper futures market.

91. The analysis in chapter V showed that there is truly one international pepper market which covers both black and white pepper from any origin. Hence, a single pepper futures market would be in a position to meet the risk management needs of all those exposed to pepper price risks, irrespective of their geographical location or the types of pepper they trade. A further argument for an international pepper futures market, rather than a series of independent national markets, is the relatively limited volume of transactions. Rough estimates indicate that the aggregate level of world trade in pepper is just adequate to support one futures market, not more.

92. The way forward therefore is to evaluate in some more detail than possible in this study whether such an international pepper futures market is viable, and if so, how it can be organized in such a way as to maximize the number of participants. Some of the key elements for consideration can be discussed here, though: the need to involve a large cross-section of the pepper market; the need to devise practical contract specifications; and the criteria to be considered for the location/organization of the pepper futures market.

93. The conditions for a successful futures contract were examined in Chapter VII above. As mentioned already, it appears that liquidity can be sufficient, but only if a large cross-section of the pepper market is tapped and remains interested in using the futures market. Many of the larger traders (who often take the initiative in getting a futures market off the ground) have the necessary prior knowledge on futures market trade, are interested in using risk management markets (as shown by the fact that they use the futures markets for the other commodities that they trade in), and have indicated their interest in participating in a pepper futures market. Some

other potential users, such as farmers' organizations and state entities, need to change statutes and other by-laws before they can use futures markets; in particular, they will need to develop guidelines for a prudential use of futures markets and for preventing their traders from speculating on these markets (such guidelines are readily available for entities trading other commodities). It is difficult to estimate the extent of possible speculative interest, but it should be noted that the speculative pool of money in the region is rather large, and that the experience of the Indian futures market would tend to indicate that pepper, with its high price volatility, is indeed of interest to speculators.

94. Contract specifications may be a problem. To a large extent, futures markets need to follow the habits of the physical market. One option which should be considered is a CIF contract, with warehouses being located in the consuming countries. The existing Indian futures market operates on the basis of FOB delivery. If an international pepper contract is to be an FOB contract, delivery points should include not only the main ports of delivery in India, but also at least one of the main delivery or transit ports in South-East Asia. Also, quality standards need to be sufficiently high (ASTA standards appear a logical choice) to avoid the use of the exchange as a dumping ground (which would depress prices). However, the volume of pepper of sufficiently high quality is currently small, and this could conceivably lead to the risks of delivery squeeze. Initially, therefore, one may prefer to allow FAQ-quality pepper to be delivered, at a discount. This matter needs further study, but it is clear that an effort should be made to upgrade pepper quality; once a futures market exists, there will automatically be an incentive to improve quality as non-deliverable grades normally trade at relatively large discounts to deliverable grades.

95. As to the location/organization of the international pepper futures market, three options can be considered: a single, world-trade-oriented futures market with a trading floor in a given country; multiple exchanges in several countries, each serving their own clientele; and multiple trading floors, in several countries, of one single exchange.

96. The first option, of a single, world-trade-oriented futures market with a trading floor in a given country implies in effect an internationalization of the Indian pepper futures market. A domestically oriented futures exchange for pepper already exists in India, and any plans for a new international pepper futures contract need to take into account the existence of this exchange. A new, independent pepper futures exchange in, for example, Malaysia or Singapore would not be able easily to make the Indian exchange obsolete and win over its clients.

97. For the Kochi futures market, this would imply internationalizing and upgrading the pepper contract presently traded, and creating international access to the market. The experience so far (in European and US markets) would tend to indicate that opening an international pepper contract in parallel to the existing domestic pepper contract would have little chance of success, as existing market users will prefer to remain in the more liquid domestic market. Thus, the first option would imply modifications in the existing Kochi pepper futures contract to make it more attractive to international usage the changes in delivery and quality specifications might cause the largest problems. Also, and perhaps more importantly, the exchange needs to be opened up to foreign participants. Necessary ancillary measures would include the freeing up of capital flows linked to risk management (models on how to do this without losing full control over capital flows are available from other countries), and the creation of a brokerage network which links the Indian market to foreign brokers and thus to potential clients. The exchange would have to arrange with Reuters, KnightRidder or other large quote vendors to ensure that prices are instantly distributed worldwide. Infrastructure in Kochi would need to be sufficiently upgraded and further developed to support international telecommunication requirements. Moreover,

concerted promotional efforts would need to be made to convince South-East Asian traders and others to use the Kochi market.

98. While this option could conceivably work, it is not clear whether South-East Asian traders are ready yet to use a futures market in India in a direct manner, such as in placing orders through brokers. Geographical distance has so far prevented close contacts and experience with the functioning of the Indian exchange, and hence has caused an apparent lack of understanding and confidence in the operation of the exchange. Further study is needed on this issue.

99. As to the second option, it would be possible to start a new futures contract for pepper in Indonesia, Malaysia or Singapore; traders from that region indicate they would support such a contract, especially if traded on a Singapore exchange. This exchange could then serve the South-East Asian pepper sector, while the Kochi exchange in India continued serving its traditional public; international buyers could use either of the exchanges. Nevertheless, given the limited size of the pepper market, it seems highly unlikely that more than one pepper futures exchange can operate effectively at any one time: liquidity would be too much diluted.

100. In the third option, trading floors for pepper futures contracts can be opened up in more than one country and these floors can be linked through electronic means. This possibility was already put forward in an UNCTAD paper of 1983,[17] and technological developments in recent years have made its realization relatively easy and cheap indeed, several market links already exist. In the case of pepper, this would imply that a proper trading floor could be established in one of the South-East Asian countries, for instance in Kuala Lumpur or Singapore, as part of the commodity futures exchanges existing there. Companies involved in commodity trade in Indonesia, Malaysia, Singapore and Thailand have all had experience in using the Kuala Lumpur and Singapore Commodity Exchanges. They understand how these markets function, trust the exchanges' managements, and know how to use these markets, including how to identify and interact with brokers. If pepper futures contracts were to be traded at any of these exchanges, there would be no real barriers to the trade in these contracts by South-East Asian companies. However, as discussed above, the likely liquidity of futures trade without Indian participation is low.

101. The logical idea would thus be to link up a trading floor in South-East Asia with the Kochi exchange in India, trading the same contract on what would effectively be one global market with two trading floors. Multi-floor markets are already in existence, both for commodities and for financial markets, and the necessary expertise, information and software to operate such a market are available; in effect, a similar possibility has been under discussion for some time for rubber, with the Singapore commodity exchange in a position to provide all necessary trading systems, while in India, the Bombay stock exchange has recently opted for a mixed open outcry/electronic trading system which allows easy linkages with other exchanges. With a trading floor in South-East Asia, it would also be easier to attract Brazilian interest: producers in Brazil are mainly large plantations, and they would be able to tap into Singapore's or Malaysia's brokerage network (indirect links already exist for trade in palm oil and rubber futures contracts). Again, the feasibility of this option would depend greatly on the willingness and support of the Governments concerned. Among other responsive measures, regulatory barriers which currently impinge on international participation in futures markets, including controls on capital movements, need to be judiciously relaxed or modified for risk management

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[17] "Commodity exchanges and their impact on the trade of developing countries" (TD/B/C.1/248), 18 May 1983.

purposes.

102. In sum, the two alternatives that can be pondered in some more detail are the internationalization of the Kochi exchange, with foreign participants obtaining access to the market through a (newly to be created) brokerage network; and the formation of one "virtual" exchange, with two trading floors linked together into one market. In both cases, capturing the participation of all relevant market parties would not be easy - both regulatory changes and training would be required. Also, in both cases a major effort would need to be made to upgrade the functioning of the Kochi exchange, in terms of its internal controls, public relations and training efforts, and auditing. Defining proper contract specifications will also require much attention; for instance, in the case of FOB delivery, a flexible system for premiums/discounts between the different delivery ports would need to be designed. Ultimately, whether one or the other alternative has the largest chance of success would depend on the cost and public acceptance of setting up and operating a good brokerage network as compared to creating a semi-permanent market link - and this is an issue which still requires study.

Annex [1]

Table 1

Short-term instability based on weekly prices from January 1992 to December 1993

		Weekly instability index
FOB black pepper prices:		
Brazil		18.8
Indonesia		24.6
India		15.4
Malaysia		23.6
FOB white pepper prices:		
Brazil		20.2
Indonesia		41.7
Malaysia		36.5
CIF black pepper prices:		
Sarawak	Netherlands	22.3
	Germany	21.3
	USA	18.1
	Japan	22.7
Lampung	Netherlands	18.7
	Germany	20.8
	USA	18.3
	Japan	7.4
Malabar	Netherlands	14.2
	Germany	16.2
	USA	16.1
	Japan	15.9

[1] Tables are UNCTAD secretariat calculations based on data provided by the International Pepper Community (IPC) and the International Trade Centre (ITC)-UNCTAD/GATT.

Table 2

Coefficient of correlation of FOB prices of black pepper of different origins, 1970-1992

	year	Brazil	India	Indonesia	Malaysia	Thailand
Brazil	1970-1992	100	90	96	97	---
	1970-1980	100	87	95	94	---
	1981-1992	100	92	96	97	95
India	1970-1992		100	95	94	---
	1970-1980		100	84	78	---
	1981-1992		100	98	98	96
Indonesia	1970-1992			100	99	---
	1970-1980			100	93	---
	1981-1992			100	99	97
Malaysia	1970-1992				100	---
	1970-1980				100	---
	1981-1992				100	98
Thailand	1970-1992					100
	1970-1980					100
	1981-1992					100

Table 3

Coefficient of correlation of FOB prices of black and white pepper, various periods

Periods	Indonesia	Brazil	Malaysia
1970 to 1992	97	98	98
1970 to 1980	88	98	98
1980 to 1992	97	98	97

Table 4
Coefficients of correlation based on weekly FOB pepper prices from January 1992 to December 1993

black pepper	Black pepper				White pepper		
	Brazil	Indonesia	India	Malaysia	Brazil	Indonesia	Malaysia
Brazil	100	88	80	90	66	84	85
Indonesia		100	85	92	73	90	92
India			100	84	72	78	81
Malaysia				100	63	91	93

Table 5

Coefficients of correlation of weekly CIF prices among different pepper grades and markets, 1992-1993

	Lampung				Malabar				Sarawak			
	The Netherlands	Germany	USA	Japan	The Netherlands	Germany	USA	Japan	The Netherlands	Germany	USA	Japan
Lampung												
Netherlands	100	91	95	38	91	87	90	86	96	94	94	91
Germany		100	95	35	94	91	93	85	96	96	95	94
USA			100	33	93	89	94	85	96	96	95	95
Japan				100	-8	-8	1	46	25	38	32	44
Malabar												
Netherlands					100	92	94	82	95	93	93	91
Germany						100	91	80	91	90	89	88
USA							100	84	93	93	93	92
Japan								100	85	88	87	89
Sarawak												
Netherlands									100	98	96	94
Germany										100	96	97
USA											100	94
Japan												100

Table 6

Coefficients of correlation between CIF prices for Lampung, Malabar and Sarawak pepper quality in the different importing countries and FOB prices of the main pepper producers, 1970-1992

	Netherlands	Germany	USA	Japan
FOB prices	**CIF Lampung prices**			
Indonesia	95	94	95	48
	CIF Malabar prices			
India	93	90	92	74
	CIF Sarawak prices			
Malaysia	95	95	90	90